

# **ABRASIVE FLUID JET MACHINING APPARATUS**

## **ABSTRACT OF THE DISCLOSURE**

A valve for controlling a flow of abrasive particles suspended in a pressurized carrier fluid has at least two apertured valve seats (74, 75) in face to face contact. One of the valve seats (74, 75) may be slid between a first position in which the apertures of each valve seat (74, 75) are aligned to allow fluid flow and a second position in which the aperture of one valve seat (74, 75) is blocked by the face of another (75, 74) to stop flow through the valve. The valve seats (74, 75) each have an outer layer of material with a hardness on the Mohs scale of at least 9, such as diamond. The valve is suitable for use in a fluid jet machining apparatus, particularly apparatus charged with a suspension of abrasive particles such as garnet in water.

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
7 November 2002 (07.11.2002)

PCT

(10) International Publication Number  
**WO 02/087827 A1**

(51) International Patent Classification<sup>7</sup>: **B24C 7/00**

(21) International Application Number: PCT/GB02/01835

(22) International Filing Date: 25 April 2002 (25.04.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0110134.4 25 April 2001 (25.04.2001) GB

(71) Applicant and

(72) Inventor: **MILLER, Donald, Stuart** [GB/GB]; Brookside, Church Walk, Harrold, Bedford, Bedfordshire MK47 7DG (GB).

(74) Agent: **GREGORY, Timothy, Mark**; 26 Cyril Street, Northampton NN1 5EL (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

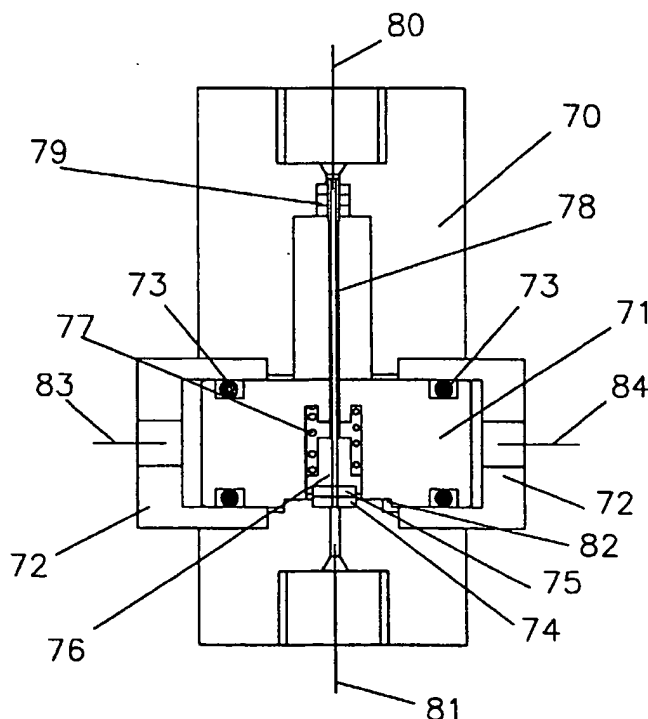
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: **ABRASIVE FLUID JET MACHINING APPARATUS**



(57) **Abstract:** A valve for controlling a flow of abrasive particles suspended in a pressurised carrier fluid has at least two apertured valve seats (74, 75) in face to face contact. One of the valve seats (74, 75) may be slid between a first position in which the apertures of each valve seat (74, 75) are aligned to allow fluid flow and a second position in which the aperture of one valve seat (74, 75) is blocked by the face of another (75, 74) to stop flow through the valve. The valve seats (74, 75) each have an outer layer of material with a hardness on the Mohs scale of at least 9, such as diamond. The valve is suitable for use in a fluid jet machining apparatus, particularly apparatus charged with a suspension of abrasive particles such as garnet in water.

WO 02/087827 A1



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*